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EXAMINER	
PHILPOTT, JUSTIN M	

ART UNIT	PAPER NUMBER
2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/826,748	Applicant(s) CHOW ET AL.	
	Examiner Justin M Philpott	Art Unit 2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 26 August 2002.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-65 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16,22 and 29-65 is/are rejected.

7)☒ Claim(s) 17-21 and 23-28 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 26 July 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 20010405.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 13, 18 and 23 are objected to because of the following informalities: "cycles; selecting" (claim 13, lines 3-4) should be changed to "cycles; and selecting"; "a an exhaust" (claim 18, line 2) should be changed to "an exhaust"; and "capacity; recalculating" (claim 23, lines 14-15) should be changed to "capacity; and recalculating". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 13-16, 22, 29-38, 57 and 60-65 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,728,205 to Finn et al.

Regarding claim 1, Finn teaches a method for designing a bi-connected ring-based network comprising: receiving a list of locations where network traffic is at least one of originated and delivered (e.g., routing table 16 comprising a listing of the nodes 12a-e, see col. 15, lines 44-56); receiving a list of pairs of directly connected locations (e.g., links), each defining a corresponding network traffic carrying connection including one or more signal

carrying connections between each of the directly connected locations (e.g., links comprise signals), and a capacity for each of the network traffic carrying connections (e.g., see col. 14, line 35 – col. 15, line 56); receiving a list of traffic demand between each of the listed pairs of locations (e.g., see col. 17, lines 10-24 regarding expected demand or traffic); determining a dual homed cover (e.g., graph, see col. 18, line 55 – col. 22, line 33) including one or more dual homed cycles (e.g., directed cycle), each cycle comprising a closed loop sequence of directly connected locations and corresponding network traffic carrying connections (see col. 19, lines 18-21), wherein each location, which is capable of being bi-connected (e.g., see FIG. 5B regarding bi-connected nodes), is included in at least one of the one or more dual homes cycles (e.g., see col. 8, lines 56-57; col. 20, line 60 – col. 22, line 45; and col. 27, lines 43-48); routing the traffic demand over the one or more cycles via the one or more of the network traffic carrying connections (e.g., see col. 17, lines 10-24); and at least one of outputting a report (e.g., conveying the information) and storing a representation containing the designed bi-connected ring-based network (e.g., see col. 43, lines 32-44).

Regarding claim 2, Finn teaches adding additional traffic carrying capacity for each of the network traffic carrying connections where the routed demand exceeds the available capacity (e.g., see col. 29, lines 51-63 regarding sharing capacity among many connections and allocating additional capacity when a failure occurs, inherently upon demand exceeding available capacity).

Regarding claim 3, Finn teaches adding additional signal carrying connections between the correspondingly directly connected locations (e.g., see col. 33, lines 14-18 regarding back-up capacity for link failures, wherein the links are signal carrying connections).

Regarding claim 4, Finn teaches routing additional fiber or wire connection between two directly connected locations (e.g., see col. 14, line 55 – col. 15, line 4 regarding adding a separate additional link, including a fiber optic cable, between each of nodes 12a-e; see also col. 15, lines 26-36 regarding installing links between the nodes).

Regarding claim 5, Finn teaches adding additional traffic carrying connections includes increasing the bandwidth (e.g., via spare bandwidth) of the existing carrying connections between the correspondingly directly connected locations (e.g., see col. 30, lines 5-8).

Regarding claim 13, Finn teaches finding a list of candidate cycles; and selecting one or more of the candidate cycles from the list (e.g., see col. 25, line 54 – col. 26, line 6 regarding selecting cycles in the graph).

Regarding claim 14, Finn teaches finding a minimal length cycle for each unordered pair of locations (e.g., a length less than that designated by the maximum number of nodes on a path, see col. 27, lines 57-67, noting also that "trees may be selected to optimize any criteria"; see also col. 29, lines 35-37 regarding minimum number of connections).

Regarding claim 15, Finn teaches removing from the list of candidate cycles any redundant cycles (e.g., see col. 36, lines 18-23 regarding condition 2).

Regarding claim 16, Finn teaches removing any cycles containing more than a predetermined maximum number of locations in the cycle sequence (e.g., see col. 27. lines 60-67 regarding maximum number of nodes on a path, inherently restricting or removing cycles which exceed this limit; also, see col. 20, lines 61-63 regarding deciding whether all nodes which should be included are in the cycle).

Regarding claim 22, Finn teaches grooming the traffic demand assigned to the available signal carrying connections of the one or more cycles (e.g., see col. 17, lines 10-24) so as to minimize the amount of network traffic management equipment required for routing the traffic demand (e.g., see col. 17, lines 31-40 regarding such transmission being accomplished in an existing network using broadcasts, multicasts or point-to-point transmission techniques).

Regarding claim 29, Finn teaches grooming network traffic originating from a common source location and being delivered to a common destination location onto the same signal carrying connection (e.g., see col. 17, lines 54-67 regarding source and destination; see also col. 16, line 30 – col. 17, line 9 regarding a single central site as a common source and one or more predetermined network sites as a common destination).

Regarding claim 30, Finn teaches network traffic management equipment includes one or more of an add-drop multiplexer and optical line terminals (e.g., see col. 5, lines 8-12).

Regarding claim 31, Finn teaches each of the cycles has at least one location which is present in no other cycle (e.g., see col. 38, lines 6-12).

Regarding claim 32, Finn teaches multiplying an already existing demand between each of the locations by a common multiple (e.g., see col. 29, line 3 – col. 33, line 23 regarding equations for the capacity).

Regarding claims 33 and 34, Finn teaches the network is an optical network constructed using optical network components and the cycles are determined in conformance with SONET transmission protocols (e.g., see col. 7, line 66 – col. 8, line 14; and col. 14, lines 46-55).

Regarding claim 35, as discussed above regarding claim 1, Finn teaches a method of designing networks comprising: defining and storing a plurality of network nodes (e.g., routing

table 16 comprising a listing of the nodes 12a-e, see col. 15, lines 44-56); defining and storing a plurality of traffic limited links between the nodes (e.g., see col. 14, line 35 – col. 15, line 56); defining a plurality of dual-homed communications rings formed of nodes joined by links (e.g., see col. 18, line 55 – col. 22, line 33); specifying and storing system traffic (e.g., see col. 17, lines 10-24 regarding expected demand or traffic); allocating traffic on the links in accordance with link capacity to support the specified traffic (e.g., see col. 17, lines 10-24 regarding capacity pre-planning); and storing a representation of at least the rings in a writeable medium (e.g., see col. 43, lines 32-44).

Regarding claim 36, Finn teaches defining locations of traffic add/drop ports in accordance with a predetermined criterion (e.g., see col. 5, lines 8-12).

Regarding claims 37 and 38, Finn teaches displaying the rings in human discernable form comprising a multi-dimensional matrix (e.g., see graphs and subgraphs, see col. 18, line 54 – col. 43, line 44) and storing the matrix in a writeable medium (e.g., see col. 43, lines 30-44 and also routing table 16 in FIG. 1).

Regarding claim 57, as discussed above regarding claims 1 and 35, Finn teaches a system comprising: a processor of executable instructions (e.g., see col. 16, lines 35-65); an input device (e.g., inherently at each node), coupled to the processor (e.g., within node, see col. 16, lines 36-41), for receiving specifying characteristics of a communication system (e.g., see col. 17, lines 10-24); a first plurality of executable instructions, coupled to the processor, for forming a plurality of connected rings wherein at least some of the rings share a common pair of nodes (e.g., see col. 16, lines 12-21 regarding pre-computed paths and dynamic paths); a second plurality of executable instructions wherein a minimum length set of rings, in accordance with a

selected length criterion, is selected (e.g., see col. 29, lines 20-50 regarding selecting a minimum number of connections); a third plurality of executable instructions for allocating traffic on the rings in accordance with at least one traffic matrix (e.g., process step 25 regarding capacity pre-planning and load balancing, see col. 17, lines 41-53); and an output device (e.g., each of nodes 12a-e, see FIG. 1) for communicating to a user (e.g., at respective other nodes 12a-e) the selected set of rings and the traffic allocated on the rings (e.g., see col. 34, lines 41-50 regarding generating two directed graphs comprising selected cycles; and see col. 15, line 14 – col. 16, line 35 and specifically col. 16, lines 30-35 regarding transmission of the topologies to each of the network nodes).

Regarding claim 60, as discussed above regarding claims 1, 35 and 57, Finn teaches software (e.g., see col. 43, lines 30-44; and col. 16, lines 35-49) for designing communications networks comprising: a storage medium (e.g., comprising routing table 16, see FIG. 1); a first plurality of stored executable instructions for receiving information defining a network (e.g., see col. 17, lines 10-24 and FIG. 1A regarding steps 20 and 21) including a plurality of nodes joined by connecting communications links (e.g., see col. 16, lines 12-21 regarding pre-computed paths and dynamic paths) including an indicium of the number of communications paths in each link (e.g., see col. 19, lines 1-35 regarding edges) and a multi-dimensional representation of a traffic path (e.g., graph, see col. 18, lines 55-67); a second plurality of stored, executable instructions for forming a biconnected representation of the network (e.g., see steps 24-28 in FIG. 1B); a third plurality of stored, executable instructions for forming a file defining connecting links between nodes (e.g., see col. 34, lines 41-50 regarding generating two directed graphs comprising selected cycles; and see col. 15, line 14 – col. 16, line 35 and specifically col. 16,

lines 30-35 regarding transmission of the topologies to each of the network nodes); and a fourth plurality of stored executable instructions for forming a traffic data file (e.g., see col. 33, lines 54-67 regarding considering traffic requirements; and see col. 16, lines 12-21 regarding storing information in a routing table 16).

Regarding claim 61, Finn teaches a plurality of instructions for forming a minimal set of dual-homed rings (e.g., cycles) covering the network in accordance with a predetermined criterion (e.g., graphs and subgraphs) (e.g., see col. 18, line 55 – col. 39, line 19).

Regarding claim 62, Finn teaches a plurality of instructions for evaluating intra-ring and inter-ring traffic (e.g., see col. 17, lines 10-24 regarding evaluating traffic from all nodes).

Regarding claim 63, Finn teaches a plurality of instructions for evaluating bandwidth requirements on links of the rings in response to the traffic data file (e.g., see col. 29, line 64 – col. 30, line 10 regarding bandwidth; see col. 33, lines 54-67 regarding considering traffic requirements; and see col. 16, lines 12-21 regarding storing information in a routing table 16).

Regarding claim 64, Finn teaches a plurality of instructions for determining locations of at least one of optical multiplexers (e.g., see col. 5, lines 8-12 regarding add/drop multiplexers) and optical terminal rings (e.g., see col. 17, lines 10-245 regarding exchanging information between nodes, inherently yielding multiplexer or terminal location information).

Regarding claim 65, Finn teaches a plurality of instructions for minimizing traffic flow between rings (e.g., see col. 27, lines 57-67 regarding load balancing).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 39-56, 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finn.

Regarding claims 39 and 58, Finn teaches the method discussed above regarding claims 35 and 57 and further, teaches representing the nodes and links as a graph (e.g., graphs, see col. 18, line 54 – col. 43, line 44) having edges (e.g., edges E, see col. 19, lines 1-3). However, Finn may not specifically disclose weighting the edges to correspond to the numbers of fibers in respective links. However, Examiner takes official notice that it is well known in the art of optical communications to weight edges corresponding to the number of fibers. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to weight the edges in the optical communications system of Finn to correspond to a number of fibers in respective links since it is well known in the art of optical communications to weight edges corresponding to the number of fibers.

Regarding claim 40, Finn teaches rings are selected in accordance with pre-stored length criterion (e.g., see col. 22, lines 34-45 regarding preselected criteria; also see col. 22, lines 6-9 regarding selection of nodes).

Regarding claim 41, Finn teaches a pre-stored minimal length criterion is applied to the rings (e.g., see col. 22, lines 34-45 regarding preselected criteria; also see col. 22, lines 6-9

regarding selection of nodes) and wherein a set of minimum length rings (e.g., see col. 20, lines 5-13 regarding k) is selected and stored (e.g., inherently stored in at least network node 12a or central site, see col. 16, lines 30-35).

Regarding claim 42, Finn teaches storing the traffic as a matrix in a writeable medium (e.g., see col. 14, line 35 – col. 15, line 56).

Regarding claims 43 and 44, Finn teaches establishing rings (e.g., cycles) which include first and second common nodes (e.g., starting node and ending node, see col. 38, lines 6-12) and allocating traffic equally between first the nodes and rings (e.g., link capacity C, see col. 37, lines 21-50).

Regarding claim 45, Finn teaches establishing rings which include a third node but not fourth node, and rings which include a fourth node but not third node and allocating traffic between nodes of the rings (e.g., see col. 38, lines 6-12).

Regarding claims 46 and 47, Finn teaches establishing a bandwidth parameter for each ring for traffic allocated thereon (e.g., see col. 29, line 64 – col. 30, line 10) and storing it in a writeable medium (e.g., see col. 14, line 35 – col. 15, line 56).

Regarding claim 48, Finn teaches selecting pairs of nodes (e.g., links) shared by respective pairs of rings (e.g., cycles) in support of inter-ring traffic (e.g., see FIGS. 5, 5A and 5B and col. 23, line 28 – col. 25, line 35).

Regarding claim 49, Finn teaches selecting a minimal length traffic route between first and second nodes in accordance with a predetermined criterion (e.g., a length less than that designated by the maximum number of nodes on a path, see col. 27, lines 57-67, noting also that

"trees may be selected to optimize any criteria"; see also col. 29, lines 35-37 regarding minimum number of connections).

Regarding claim 50, as discussed above regarding claim 39, while Finn may not specifically disclose weighting the edges, and further, may not disclose first and second weights, Examiner takes official notice that it is well known in the art of optical communications to weight edges of respective links. Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to weight the edges of respective links in the optical communications system of Finn since it is well known in the art of optical communications to weight edges in respective links.

Regarding claim 51, Finn teaches traffic between selected rings is routed through each node of each selected pair shared by those rings (e.g., see FIGS. 5, 5A and 5B and col. 23, line 28 – col. 25, line 35).

Regarding claims 52-55, Finn teaches locating traffic multiplexers at locations on selected rings where traffic is to be added or dropped, and at selected pairs of nodes shared between rings (e.g., see col. 5, lines 8-12 regarding add/drop multiplexers), and altering a traffic matrix accordingly (e.g., graphs and subgraphs, see col. 18, line 54 – col. 43, line 44; see also col. 43, lines 30-44 and also routing table 16 in FIG. 1).

Regarding claims 56 and 59, Finn teaches locating optical line terminals in accordance with traffic requirements (e.g., see col. 17, lines 10-24 and col. 14, lines 46-67).

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finn in view of U.S. Patent No. 6,567,429 to DeMartino.

Regarding claims 6 and 7, Finn teaches the method discussed above regarding claim 2, however, may not specifically disclose compressing data streams using different carrier frequency or wavelengths. DeMartino also teaches a method for optical communications and, specifically, teaches compressing data streams using different wavelengths (e.g., see col. 14, lines 20-40, specifically lines 37-40). The teachings of DeMartino provide accommodating many more nodes (e.g., see col. 14, lines 41-56). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to implement the optical transmission teachings of DeMartino to the optical communications method of Finn in order to accommodate many more nodes, providing a more robust network.

7. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finn in view of Applicant's Admitted Prior Art (AAPA).

Regarding claims 8 and 9, Finn teaches the method discussed above regarding claim 1, however, may not specifically disclose routing traffic according to the shortest route. AAPA (e.g., prior art FIG. 9 and corresponding description at page 17, line 27 to page 18, line 15) discloses it is well known in the art to route traffic according to the shortest path (e.g., shortest paths 605 and 610), inherently comprising the fewest sequences of directly connected locations. Thus, at the time of the invention it would have been obvious to route traffic according to the shortest path since applicant admits it is well known in the art to route traffic according to the shortest path.

Regarding claim 10, AAPA further teaches preference is given for routing traffic within the same cycle (e.g., see page 17, lines 10-15 regarding balancing portions of inter-ring traffic to

the extent they travel intra-ring over portions of their path). As discussed above, at the time of the invention it would have been obvious to one of ordinary skill in the art to apply AAPA to the method of Finn since applicant admits such teachings are well known in the art.

Regarding claim 11, AAPA further teaches determination of the shortest effective route (e.g., 605) includes a weighted sum of the sequence of directly connected locations (e.g., a and b) where a transition between directly connected locations on different cycles (e.g., 610) is weighted so as to count as a transition between a predetermined number of directly connected locations on the same cycle (e.g., 605), where the predetermined number exceeds the maximum number of locations on any of the determined cycles (e.g., see page 17, lines 1-15, and specifically, lines 12-14 which imply incorporation by reference to the prior art load balancing teachings of Myung-Kim-Tcha). As discussed above, at the time of the invention it would have been obvious to route traffic according to the shortest path since applicant admits it is well known in the art to route traffic according to the shortest path.

Regarding claim 12, APPA further teaches selectively routing at least some of the traffic demand through an alternative route (e.g., 615) comprising an alternative sequence of locations (e.g., a-g-f-e-d-c-b) in order to minimize the maximum amount of traffic routed through any one of the network traffic carrying connections (e.g., a-b) of each cycle (e.g., 605). As discussed above, at the time of the invention it would have been obvious to route traffic according to the shortest path since applicant admits it is well known in the art to route traffic according to the shortest path.

Allowable Subject Matter

8. Claims 17-21 and 23-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is an examiner's statement of reasons for allowance:

Claim 17 comprises selecting cycles which includes steps of selecting the best rated cycle, determining if the selected cycle covers all the locations capable of being bi-connected, if not, selecting an additional cycle bi-connected to at least of the previously selected cycles which in combination with the previously selected cycles has the best rating, and repeating the selection process for additional cycles until all locations capable of being bi-connected are covered. The above limitations, in combination with the limitations of claims 1 and 13 upon which claim 17 depends, were not found in a search of the prior art.

Claims 18-21 depend upon claim 17 and comprise allowable subject matter for the same reasons discussed above regarding claim 17.

Claim 23 comprises grooming a traffic demand which includes the steps of creating a list of traffic demand entries, each comprising a value of the volume of traffic and a sequence of network traffic carrying connections that the traffic traverses; creating a list of signal carrying connections where each signal carrying connection comprises a traffic carrying capacity, a value corresponding to the amount of traffic already assigned, and a list of traffic management equipment supporting the already assigned traffic; rating the traffic demand entries with respect to the signal carrying connections having unassigned capacity; and recalculating the ratings of any traffic demand entries, where the value of the volume of traffic has not yet been assigned,

and assigning the value of the volume of traffic associated with the traffic demand entry having the highest rating to the corresponding signal carrying connection having available unassigned capacity until all the traffic demand entries have been assigned.

Claims 24-28 depend upon claim 23 and comprise allowable subject matter for the same reasons discussed above regarding claim 23.

10. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,742,774 to Al-Salameh et al. discloses a mutli-ring SONET architecture; and U.S. Patent No. 6,826,158 to Seaman et al. discloses a ring for metropolitan area networks.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on 571.272.3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMP

Justin M Philpott

ALPUS H. HSU
PRIMARY EXAMINER